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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,717	10/19/2001	Kireeti Kompella	1014-013US01	9695
28863	7590	02/23/2006	EXAMINER	
SHUMAKER & SIEFFERT, P. A. 8425 SEASONS PARKWAY SUITE 105 ST. PAUL, MN 55125			SHAW, PELING ANDY	
			ART UNIT	PAPER NUMBER
			2144	

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/045,717

Applicant(s)

KOMPELLA, KIREETI

Examiner

Peling A. Shaw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Amendment received on 11/23/2005 has been entered. Claim 12 is amended. Claims 1-44 are still pending.

***Priority***

2. This application has no priority claim made. The filing date is 10/19/2001.

***Claim Rejections - 35 USC § 101 Utility***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12-16 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific asserted utility or a well established utility.

- a. Amended claim 12 is claiming a data structure residing on a computer-readable medium. It does not render any tangible utility by itself.
- b. Claims 13-16 depend upon claim 12. These are rejected for the same reason as for claim 12.
- c. The corresponding method claims, i.e. claims 1-2 and 5-6, cover the same limitations as claims 12-16 would. Claims 12-16 could be re-written as a computer-readable medium, e.g. on a CD-Rom, contains instructions for execution on a computer to perform functions. That would render the claims acceptable under 35 U.S.C. 101.

Claims 12-16 are rejected also under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either an asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-9, 11, 17, 20-21, 24-28, 31-34, 36-38 and 41-44 are rejected under 35

U.S.C. 102(e) as being anticipated by Cain (US 6857026 B1), hereinafter referred as Cain.

- a. Regarding claim 1, Cain disclosed a method comprising: storing route data representing routes within a computer network (column 3, line 50-63; column 4, line 12-29 and 42-56); storing next hop data representing network devices neighboring a network router (column 4, line 12-29 and 42-56); and storing indirect next hop data that maps at least a subset of the routes represented by the route data to a common portion of the next hop data (column 3, line 50-63; column 4, line 12-29 and 42-56).
- b. Regarding claim 6, Cain disclosed the method of claim 1, wherein storing the next hop data comprises storing an array of next hop data elements, and further wherein the common portion of the next hop data comprises at least one next hop data element (column 3, line 50-63).
- c. Regarding claim 7, Cain disclosed the method of claim 1, further comprising: receiving a packet comprising network update information (column 5, line 51-63);

- and modifying the common portion of the next hop data in response to the network update information (column 5, line 19-28 and 42-50).
- d. Regarding claim 8, Cain disclosed the method of claim 1, further comprising: storing routing information within a routing engine, wherein the routing information represents routes within a network (column 5, line 9-29 and 42-50); and storing the route data, the indirect next hop data and the next hop data within a packet forwarding engine (column 5, line 9-29 and 42-67).
- e. Regarding claim 9, Cain disclosed the method of claim 8, further comprising: receiving a packet comprising network topology update information (column 1, line 29-37; Fig. 2, item 204; column 4, line 66-column 5, line 8; column 5, line 29-41); updating the routing information within the routing engine (Fig. 2, item 210; column 2, line 7-10; column 4, line 66-column 5, line 8; column 19-28 and 42-50); and issuing a message from the routing engine to direct the packet forwarding engine to modify the common portion of the next hop data in response to the network update information (column 3, line 11-20; column 5, line 51-63).
- f. Regarding claim 11, Cain disclosed the method of claim 9, wherein storing the routing information includes storing a copy of the route data, the indirect next hop data and the next hop data stored within the packet forwarding engine, and issuing the message comprises analyzing the copy to identify the next hop for modification (Fig. 2; column 4, line 66-column 5, line 67).
- g. Claim 17 is of the same scope as claim 1. It is rejected for the same reason as for claim 1.

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- h. Regarding claim 20, Cain disclosed the router of claim 17, wherein some of the next hop data represents software modules for processing data packets (column 6, line 1-18).
- i. Regarding claim 21, Cain disclosed the router of claim 20, wherein each of the software modules is selected from one of a packet filter, a policy enforcer and a packet counter (column 4, line 12-29).
- j. Claims 24-28, 31-34, 36-38 and 41-44 are of the same scope of claims 1, 6-9 and 11.

These are rejected for the same reason as for claims 1, 6-9 and 11.

Cain disclosed all limitations of claims 1, 6-9, 11, 17, 20-21, 24-28, 31-34, 36-38 and 41-44.

Claims 1, 6-9, 11, 17, 20-21, 24-28, 31-34, 36-38 and 41-44 are rejected under 35 U.S.C.

102(e).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5, 18-19, 22-23, 29-30 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cain (US 6857026 B1), hereinafter referred as Cain as applied to claim 1 above, and further in view of Aramaki et al. (US 6618760 B1), hereinafter referred as Aramaki.

- a. Cain shows (claim 1) a method comprising: storing route data representing routes within a computer network (column 3, line 50-63; column 4, line 12-29 and 42-56); storing next hop data representing network devices neighboring a network router (column 4, line 12-29 and 42-56); and storing indirect next hop data that maps at least a subset of the routes represented by the route data to a common portion of the next hop data (column 3, line 50-63; column 4, line 12-29 and 42-56). Cain also shows (claim 3) wherein storing the indirect next hop data comprises: storing a reference to a primary next hop (column 4, line 12-56), and storing a reference to a backup next hop (column 4, line 12-56); (claim 4) further comprising routing packets to the backup next hop in response to a network event (column 3, line 38-49; column 4, line 30-41). Cain does not show (claim 2) wherein storing route data comprises storing a radix tree having a set of leaf nodes, wherein each leaf node corresponds to a destination within the network; (claim 5) wherein storing the indirect next hop data comprises storing a data pointer within each of the leaf nodes.
- b. Aramaki shows (claim 2) wherein storing route data comprises storing a radix tree having a set of leaf nodes, wherein each leaf node corresponds to a destination within the network (column 2, line 14-40); (claim 5) wherein storing the indirect next hop data comprises storing a data pointer within each of the leaf nodes (column 5, line 48-column 6, line 16) in an analogous art for the purpose of forwarding information retrieval technique.
- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Cain's functions of using alternate routes for fail-over

in a communication network with Aramaki's specific usage of radix tree and pointer in routing table.

- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use radix tree and pointer in routing table as per Aramaki's teaching in a routing table specifying preferred and alternate routes as per Cain's teaching.

- e. Claims 18-19, 22-23, 29-30 and 39-40 are of the same scope of claims 2-3 and 5.

These are rejected for the same reason as for claims 2-3 and 5.

Together Cain and Aramaki disclosed all limitations of claims 2-5, 18-19, 22-23, 29-30 and 39-40. Claims 2-5, 18-19, 22-23, 29-30 and 39-40 are rejected under 35 U.S.C. 103(a).

***Response to Arguments***

6. Applicant's arguments filed on 11/23/2005 have been fully considered, but they are not persuasive.
  - a. Applicant has alleged that Cain does not teach "indirect next hop data". Applicant admits that Cain does teach "next hop data". Looking at one of cited paragraphs, i.e. column 4, lines 12-19, Cain has pointed out determining various routes to the other nodes with an assignment of relative priority to each route, e.g. from node A to D via ABD, ACD, ABCD and ABDC, by running multiple routing protocols. Cain has shown routing indirectly from A to D via different routes with the consideration of priority assignment to the next hop, i.e. either B or C via different route (or hop). Cain has certainly demonstrated the consideration of indirect next hop consideration. As a person of ordinary skill in the art at the time of the invention was made would know routing consideration for next hop would include the indirect next hop as Cain has pointed out and it has also been pointed out in Hariguchi et al. (US 6665297 B1), e.g. column 1, lines 23-38 and column 5, lines 6-45.

*Remarks*

7. The following pertaining arts are discovered and not used in this office action. Office reserves the right to use these arts in later actions.

- a. Medard et al. (US 6047331 A) Method and apparatus for automatic protection switching
- b. Hariguchi et al. (US 6665297 B1) Network routing table
- a. Marques et al. (US 6643706 B1) Scaleable route redistribution mechanism

*Conclusion*

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to the enclosed PTO-892 for details.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peling A. Shaw whose telephone number is (571) 272-7968. The examiner can normally be reached on M-F 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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DAVID WILEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100